

Oscar buys 13 pencils and 3 erasers for \$1.00. A pencil costs more than an eraser, and both items cost a whole number of cents. What is the total cost, in cents, of one pencil and one eraser?

- (A) 10 (B) 12 (C) 15 (D) 18 (E) 20

2006 AMC 12 A, Problem #9—

“Let p be the cost (in cents) of a pencil, and let s be the cost (in cents) of a set of one pencil and one eraser.”

Solution (A) Let p be the cost (in cents) of a pencil, and let s be the cost (in cents) of a set of one pencil and one eraser. Because Oscar buys 3 sets and 10 extra pencils for \$1.00, we have

$$3s + 10p = 100.$$

Thus $3s$ is a multiple of 10 that is less than 100, so s is 10, 20, or 30. The corresponding values of p are 7, 4, and 1. Since the cost of a pencil is more than half the cost of the set, the only possibility is $s = 10$.

Difficulty: Easy

NCTM Standard: Algebra Standard: represent and analyze mathematical situations and structures using algebraic symbols

Mathworld.com Classification: Algebra > Algebraic Equations > Linear Equation